

"A Transmission Line Power Paradox and Its Resolution"

Abstract: Every Radio Amateur knows that transmission lines support waves in two directions. Therefore every Radio Amateur "knows" that if a forward wave carries forward power, and a reverse wave carries reverse power, then net power delivered is the difference between the two. Right? At the 2010 Pacificon Antenna Forum, Steve, K6OIK, showed this simple idea leads to the "proof" of the published equations for transmission line loss. Now he will show a transmission line paradox in which those "proved" equations fail to give the right answer. In fact, the standard equations are only correct for certain special cases, which Steve will explain. In the history of transmission line theory, some authors gave comprehensive treatments while others made simplifying assumptions that have led to incorrect ideas, i.e. false knowledge. Steve will show us how to think about and compute transmission line power transfer and loss.

Steve, K6OIK